

**REMARKS**

Claims 1-9 are pending in this application. Claims 1-4 have been withdrawn from consideration by the Examiner. By this Amendment, claims 5 and 6 are amended. Support for the amendment to the claims may be found in the specification, for example, at paragraph [0017]. No new matter is added.

In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration (as the amendments amplify issues previously discussed throughout prosecution); (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

**I. Rejection under 35 U.S.C. §103(a)**

The Office Action rejects claims 5-9 under 35 U.S.C. §103(a) as obvious over U.S. Patent Publication Application No. U.S. 2005/0089677 to Marissen et al. ("Marissen") in view of U.S. Patent No. 7,108,841 to Smalley et al. ("Smalley") or "Chemical Treatment of Carbon Nanotubes", Carbon: Elsevier Science Publishing, 34, 1996, pp. 279-281 to Esumi ("Esumi"). Applicants respectfully traverse the rejection.

Claims 5 and 6 are amended to clarify that the method for producing a polymer composite comprises: modifying a carbon nanotube with a basic or acidic functional group; and uniformly dispersing the modified carbon nanotube in a polar solvent having a polarity

opposite to a polarity of the functional group to form a carbon nanotube dispersion liquid without being mixed with a surfactant. Claims 5 and 6 would not have been rendered obvious by Marissen, Smalley and Esumi.

The Office Action asserts that Marissen discloses a method where a polymer is dissolved and mixed with a nanotube dispersion (paragraph [0027]), wherein the nanotubes preferably have functional groups which contribute to easier dispersion into individual nanotubes in a solvent (paragraph [0029]) and the solvent is subsequently removed by evaporation (paragraph [0032]). Moreover, the Office Action asserts that even though Marissen does not explicitly disclose whether the functional group on the nanotube is basic or acidic, it refers to WO 98/39250 for teaching regarding functional groups (paragraph [0029]), and further asserts that it would therefore have been obvious to one of ordinary skill in the art to utilize a polar solvent with opposite polarity to disperse the functionalized carbon nanotubes since acid/base interactions are compatible.

As amended, claims 5 and 6 specifically require that the dispersion occur uniformly and without being mixed with a surfactant. According to the specification, it is important that the polymer composite does not contain a surfactant, to allow for a carbon nanotube to be dispersed in an extremely uniform manner, which allows an increase in dynamic strength of the polymer. *See* specification at paragraph [0017]. Marissen does not teach or suggest such a feature or the benefit or advantage of not mixing with a surfactant, as required by independent claims 5 and 6. On the contrary, Marissen discloses in one of its preferred embodiments that it would be advantageous to add a dispersion aid, like a surfactant, to achieve better dispersion. *See* Marissen at paragraph [0025]. Therefore, Marissen teaches away from the claimed invention.

Smalley and Esumi also fail to provide any teaching or suggestion that cures this deficiency. Therefore, Marissen, Smalley and Esumi, considered separately or in combination, fail to teach or suggest each and every feature of claims 5 and 6.

Marissen, Smalley and Esumi would not have rendered obvious claims 5 and 6. Claims 7-9 variously depend from claims 5 and 6 and, thus, also would not have been rendered obvious by the cited references. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

## **II. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff  
Registration No. 27,075

Jeffrey R. Bousquet  
Registration No. 57,771

JAO:JXT/ldg

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**OLIFF & BERRIDGE, PLC**  
**P.O. Box 19928**  
**Alexandria, Virginia 22320**  
**Telephone: (703) 836-6400**

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